

Notice of Allowability

Application No.

10/005,193

Examiner

Fred I. Ehichioya

Applicant(s)

CHEN ET AL.

Art Unit

2162

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 09/04/2007.
2. ☒ The allowed claim(s) is/are 1, 2, 4, 5, 7 - 10, 18 - 21, 36, 38 - 40, 42 - 44, and 45.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

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Examiner's Amendment

1. During telephone conversation with Philip S. Lyren, Attorney for the Applicants, Registration Number 40,709 on April 13, 2006 authorizations for this Examiner's amendment was given in a telephone interview.

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

In the claims,

Please amend the followings:

1. (currently amended) A method of storing and ordering image data in a database comprising:

gathering a plurality of images for inclusion in the database;

computing, by a Fourier-Mellin Transform (FMT), a match descriptor indicative of each of the plurality of images, each of the match descriptors corresponding to a multidimensional space having more than two dimensions; and

organizing the match descriptors in the database, the organizing being performed according to a predetermined metric indicative of a correspondence between a given match descriptor and the other match descriptors in the database, wherein the

Art Unit: 2162

predetermined metric defines a similarity between two different match descriptors such that the similarity is a ratio of a number of elements common to two sets of match descriptors and a total number of unique elements in the two sets of match descriptors;

receiving a target image for which a match is sought;

computing a target descriptor indicative of the target image;

mapping into the database to determine a close match of the target descriptor among the organized match descriptors;

selecting a candidate match descriptor from among the organized match descriptors; and

returning the candidate match descriptor if the candidate match descriptor is a match to the target descriptor, the match being determined by a similarity metric, wherein the predetermined similarity metric defines a ratio of (i) a number of descriptors common to the target and candidate match descriptors and (ii) a total number of descriptors unique to the target and candidate match descriptors.

42. (currently amended) A method of software execution for storing and ordering image data, comprising:

dividing each image of plural images into plural regions;

computing, by a Fourier-Mellin Transform (FMT) for each region, a descriptor that correspond to multidimensional space having more than two dimensions; and

organizing the descriptors in the database by applying a similarity metric to measure a difference between two images, wherein the difference between two different

Art Unit: 2162

sets of descriptors is a ratio of a number of elements common to the two sets and a total number of unique elements in the two sets;

receiving a target image for which a match is sought;

computing a target descriptor indicative of the target image;

mapping into the database to determine a close match of the target descriptor among the organized descriptors;

selecting a candidate match descriptor from among the organized descriptors;

and

returning the candidate match descriptor if the candidate match descriptor is a match to the target descriptor, the match being determined by a similarity metric, wherein the predetermined similarity metric defines a ratio of (i) a number of descriptors common to the target and candidate match descriptors and (ii) a total number of descriptors unique to the target and candidate match descriptors.

43. (currently amended) The method of claim 42 further comprising:

computing, by the FMT, thea target descriptor for thea target image;

using the similarity metric to determine similarity between the target descriptor and at least one candidate descriptor from the descriptors.

Allowable Subject Matter

2. Claims 1, 2, 4, 5, 7 – 10, 18 – 21, 36, 38 – 40, 42 – 44 and 45 (renumbered 1 – 20) are allowed over the prior art of record.

3. The following is an examiner's statement of reasons for allowance:

The prior art of record, (Derrode) discloses specific formula for determining a distance or similarity between two images but fail to anticipate or render obvious the recited feature "a similarity is a ratio of a number of elements common to two sets of match descriptors and a total number of unique elements in the two sets match descriptors"; (USPN 6,049,797 and also Syracuse University) discloses a possible definition of similarity between two transactions and similarity is a ratio of a number of elements common to two sets but fail to anticipate or render obvious the recited feature "computing, by a Fourier-Mellin Transform (FMT), a match descriptor indicative of each of the plurality of images, each of the match descriptors corresponding to a multidimensional space having more than two dimensions" as recited in the independent claims.

The dependent claims, being definite, further limiting, and fully enabled by the specification are also allowed.

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Art Unit: 2162

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred I. Ehichioya whose telephone number is 571-272-4034. The examiner can normally be reached on M - F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene can be reached on 571-272-4107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Fred I. Ehichioya/

October 29, 2007



JOHN BREENE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2162